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EXAMINER	
LEIBY, CHRISTOPHER E	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/579,634	KIENHOEFER, CARSTEN
	Examiner	Art Unit
	CHRISTOPHER E. LEIBY	2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 May 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Detailed Action

1. **Claims 1-34** are pending.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1-34** are rejected under 35 U.S.C. 103(a) as being anticipated by **Rosmalen** (US Patent 7,456,827) in view of **Yamazaki et al.** (US Patent 6,911,781), herein after referred to as Yamazaki.

Regarding **independent claims 1 and 30**, Rosmalen discloses a process for operating a wear-afflicted display and a wear-afflicted display having defined pixels (*column 5 lines 46-47*), in which each pixel is assigned a memory address in a memory element to record the operating time of each pixel and integrated over the operating time and operating intensity to determine a pixel wear value (R.sup.int, G.sup.int, B.sup.int) (*columns 2 and 5 lines 1-17 and 46-60 respectively, wherein a pixel is continuously diagnosed about the lifetime of the pixel to determine its history, including its three colors, wherein those parameters are stored in a memory to be used to adjust the duty cycle of the pixel group, wherein the pixel group is defined through the discloser as being many different types of groups such as by color, deterioration, areas, or even just a single pixel;*

however using a single pixel column 2 lines 37-58) and in which a pixel wear value, is stored for each pixel in the form of a stored pixel wear value (R.sup.vn, G.sup.vn, B.sup.vn) in a memory for each of the three basic colors including red, green, and blue (*columns 2 and 5 lines 1-17 and 46-60 respectively, wherein a pixel is continuously diagnosed about the lifetime of the pixel to determine its history, including its three colors, wherein those parameters are stored in a memory to be used to adjust the duty cycle of the pixel group*).

Rosmalen does not disclose specifics of the types of memory used to store the operating time/history of the pixel nor does Rosmalen disclose while the non-volatile stored pixel wear value (R.sup.vn, G.sup.vn, B.sup.vn) is obtained as a sum of the most *significant bits* integrated over the operating time of the pixel of a pixel wear value (R.sup.vf, G.sup.vf, B.sup.vf) that is volatile stored in a volatile memory, wherein the *less significant bits* of the volatile stored pixel wear value (R.sup.vf, G.sup.vf, B.sup.vf) are retained unchanged in the volatile memory.

Yamazaki discloses several examples of methods for correcting a display from pixel deterioration in which only the most significant bit is used of the correction parameter to be used for correction of the pixel (*column 16 lines 32-60*).

It is inherent that volatile memory is used for faster computations as compared to non-volatile memory, but has the draw back of not being able to store information when the system is turned off.

Therefor, it would have been obvious to one skilled in the art at the time of the invention that a continuous computation of pixel state, such as that disclosed by Rosmalen above, would use information stored in volatile memory for faster

computation further made faster by only using the MSB as disclosed by Yamazaki (*column 16 lines 32-60*).

It further would have been obvious to one skilled in the art at the time of the invention to that non-volatile memory would be used to store at least those bits not used for computation, LSB, or even all of the information to be used after the system has been turned off and back on again in order to have the system recall the history of the pixel accurately.

Regarding **independent claims 2 and 29**, Rosmalen discloses a process for operating a wear-afflicted display and a wear-afflicted display having defined pixels (*column 5 lines 46-47*), in which each pixel is assigned a memory address in a memory element to record the operating time of each pixel and integrated over the operating time and operating intensity to determine a pixel wear value (R.sup.int, G.sup.int, B.sup.int) (*columns 2 and 5 lines 1-17 and 46-60 respectively, wherein a pixel is continuously diagnosed about the lifetime of the pixel to determine its history, including its three colors, wherein those parameters are stored in a memory to be used to adjust the duty cycle of the pixel group, wherein the pixel group is defined through the discloser as being many different types of groups such as by color, deterioration, areas, or even just a single pixel; however using a single pixel column 2 lines 37-58*) and in which a pixel wear value, is stored for each pixel in the form of a stored pixel wear value (R.sup.vn, G.sup.vn, B.sup.vn) in a memory for each of the three basic colors including red, green, and blue (*columns 2 and 5 lines 1-17 and 46-60 respectively, wherein a pixel is continuously diagnosed about the lifetime of the pixel to determine its history, including its three colors,*

wherein those parameters are stored in a memory to be used to adjust the duty cycle of the pixel group)

Rosmalen does not disclose specifics of the types of memory used to store the operating time/history of the pixel nor does Rosmalen disclose while the non-volatile stored pixel wear value (R.sup.vn, G.sup.vn, B.sup.vn) is obtained as a sum of the most *significant bits* integrated over the operating time of the pixel of a pixel wear value (R.sup.vf, G.sup.vf, B.sup.vf) that is volatile stored in a volatile memory, wherein a correction value (R.sup.kor, G.sup.kor, B.sup.kor) for correcting the respective pixel signal (R, G, B) that is individual to each pixel is stored in the same memory cell (R.sup.vf, G.sup.vf, B.sup.vf) of the volatile memory as the volatile stored pixel wear value (R.sup.vf, G.sup.vf, B.sup.vf), and a characteristic that is proportional to the respective pixel wear values is stored in addition or alternatively to the pixel wear values.

Yamazaki discloses several examples of methods for correcting a display from pixel deterioration in which only the most significant bit is used of the correction parameter to be used for correction of the pixel (*column 16 lines 32-60*).

It is inherent that volatile memory is used for faster computations as compared to non-volatile memory, but has the draw back of not being able to store information when the system is turned off.

Therefor, it would have been obvious to one skilled in the art at the time of the invention that a continuous computation of pixel state, such as that disclosed by Rosmalen above, would use information stored in volatile memory for faster

computation further made faster by only using the MSB as disclosed by Yamazaki (*column 16 lines 32-60*) to create a correction signal to be used for the pixel.

It further would have been obvious to one skilled in the art at the time of the invention to that non-volatile memory would be used to store at least those bits not used for computation, LSB, or even all of the information, including any characteristics of the pixel values, to be used after the system has been turned off and back on again in order to have the system recall the history of the pixel accurately.

Regarding **claims 3 and 4** please review obvious statement directly above wherein a computer would inherently use both types of memory for the reasons given above.

Regarding **claim 5**, Rosmalen discloses a process, wherein the display is operated first uncorrected and then, after the data has been completely rewritten from the non-volatile memory into the volatile memory, the display is operated with the corrected pixel data (R', G', B') when the display is turned on (*it is inherent through Rosmalen's disclosure of column 5 lines 46-60 that a display would be corrected depending on the parameters of the history of the pixel, wherein it would have been obvious to one skilled in the art at the time of the invention that if no such correction would be need at the time the display is operated, such as the very first, than the display would operate uncorrected until a time when the display is on, that is would need correction*).

Regarding **claims 6 and 7**, one skilled in the art at the time of the invention would know that many different types of memory exist for volatile and

non-volatile memory including SDRAM, MRAM, FRAM, FeRAM, RRAM, and PCM and one would chose depending on the design preference of the inventor. This seems to be the case for claims 6 and 7, since there is no discloser of any advantage of using such specific memories it is seen by examiner that these are design preferences of the inventor with no bearing on operation of the invention what so ever.

Regarding **claim 8**, Rosmalen discloses a process, wherein the respectively recorded volume of data is reduced by one of reducing the accuracy of the recorded pixel wear values (R.sup.int, G.sup.int, B.sup.int) or that of the characteristics that are proportional to them, and storing a difference value between the respective pixel wear value (R.sup.int, G.sup.int, B.sup.int) and a predeterminable maximum pixel wear value (*recoding only the MSB in volatile memory would reduced the accuracy of the recorded pixel wear please review rejection and obvious statements of claims 1 and 2*).

Regarding **claim 9**, Yamazaki discloses a process, wherein the intensity of the individual pixels is increased or decreased separately for each of the basic colors red, green, and blue, in dependence upon at least one of respective individually stored pixel wear values (R.sup.int, G.sup.int, B.sup.int) and characteristics that are proportional to these (*figures 3a and 3b*).

Regarding **claim 10**, Rosmalen discloses a process, wherein the increase or decrease of the intensity of the individual pixels is carried out one of automatically, interactively, and manually in dependence upon predetermined

threshold values (*column 5 lines 46-60 wherein a correction is done determined by the history of the pixels, wherein the system comprising the memory does the computations and therefor automatically*).

Regarding **claim 11**, Yamazaki discloses a process, wherein a correction image for the display is generated from the stored pixel wear values or from the characteristics that are proportional to these, whose indication on the display equalizes the individually different pixel wear values with a general wear level (*column 2 lines 16-29 reference average*).

Regarding **claim 12**, Rosmalen discloses a process, wherein the indication of the correction image on the display is carried out one of automatically, interactively, and manually at predeterminable times in dependence upon predetermined threshold values of the pixel wear value or the characteristics that are proportional to the pixel wear values (*column 5 lines 46-60 wherein a correction is done determined by the history of the pixels, wherein the system comprising the memory does the computations and therefor automatically at predetermined times being when the computation of the current parameters of the current diagnosis is complete*).

Regarding **claim 13**, Rosmalen discloses a process, wherein selected pixels are operated separately to accelerate the equalization of the pixel wear values (R*, G*, B*) (*column 5 lines 46-60 wherein groups of pixels are selected in order to accelerate processing of the duty cycles and therefor the average of the display as disclosed by Yamazaki column 2 lines 16-29*).

Regarding **claim 14**, Rosmalen discloses a process, wherein pixel correction data (R.sup.kor, G.sup.kor, B.sup.kor) predetermined by a logic

element are added respectively to the red, green, and blue pixel data (R. G, B), and the display is then operated with the correspondingly corrected pixel data (R', G', B') (*active matrix displays as disclosed by Rosmalen are inherent to have a driving element which may also be called a logic element as claimed*).

Regarding **claim 15**, Rosmalen discloses a process, wherein the pixel correction data (R.sup.kor, G.sup.kor, B.sup.kor) are determined with the logic element one of by evaluating the recorded pixel wear data (R.sup.int, G.sup.int, B.sup.int) based on the characteristics dependent from these, and by means of wear characteristic fields stored separately for each of the three basic colors (*column 5 lines 46-60 diagnosing and correcting a display pixel based upon the history of the pixel uses a logic element to drive the display element according to the corrected data based upon the characteristics of the correction signal and history of the pixel*).

Regarding **claim 16**, Rosmalen discloses a process, wherein the generation of the pixel correction values (R.sup.kor, G.sup.kor, B.sup.kor) is carried out only at defined time intervals (*column 5 lines 46-60 wherein a correction is done determined by the history of the pixels, wherein the system comprising the memory does the computations and therefor automatically at predetermined times being when the computation of the current parameters of the current diagnosis is complete, reference continuously*).

Regarding **claim 17**, Rosmalen discloses a process, wherein the determination of the pixel correction data (R.sup.kor, G.sup.kor, B.sup.kor) is carried out in dependence upon at least one of an individual phosphorous characteristic of the display, an overall brightness of the display, an overall brightness of the display in the basic colors red, green, and blue, an operating

temperature of the display and a color temperature of the display (*column 5 lines 46-60 reference history of the pixel*).

Regarding **claim 18**, Rosmalen discloses a process, wherein the display is a master display, the memory element is upgraded in a first step with the volatile and the non-volatile memory, and the display is then additionally operated initially uncorrected with a defined image and is evaluated with regard to the individual wear characteristic of the display, and the individual pixel wear values ((R.sup.int, G.sup.int, B.sup.int) are transmitted to the memory elements (*it is inherent through Rosmalen's disclosure of column 5 lines 46-60 that a display would be corrected depending on the parameters of the history of the pixel, wherein it would have been obvious to one skilled in the art at the time of the invention that if no such correction would be need at the time the display is operated, such as the very first, than the display would operate uncorrected until a time when the display is on, that is would need correction*), the correction data (R.sup.kor, G.sup.kor, B.sup.kor) are determined by means of the logic element(s) that are upgraded if necessary (*active matrix displays as disclosed by Rosmalen are inherent to have a driving element which may also be called a logic element as claimed*), and are then operated with the corrected image values (R', G', B') to equalize the wear on the display at the individual pixels (*column 5 lines 46-60 wherein groups of pixels are selected in order to accelerate processing of the duty cycles and therefor the average of the display as disclosed by Yamazaki column 2 lines 16-29*).

Regarding **claim 19**, Rosmalen discloses a process, wherein the graphic data shown on the display are scaled by an adaptation of the respectively represented resolution to the format of the physical resolution of the display or by

way of the deinterlacing (*inherent that all displays can adapt video to be displayed at a native resolution to the display monitor*).

Regarding **claim 20**, Rosmalen discloses a process, wherein the adaptation of different width-to-height ratio of the video source and the display is integrated in the logic element as well as in the process (*inherent that all displays can adapt video to be displayed at a native resolution to the display monitor the logic elements of Rosmalen's display would inherent know how to operate to display a data signal*).

Regarding **claim 21**, Yamazaki discloses a process, wherein the display comprises a plasma generator, in which the corrected pixel values (R', G', B') determined by the logic element are allocated to the plasma pulse generator and an individual brightness control of the pixels of the display is carried out for each pixel by the plasma pulse generator (*column 12 lines 8-12 reference PDP*).

Regarding **claims 22 and 31**, Yamazaki discloses a process, wherein the display comprises a plasma pulse generator, in which the pixel correction values (R.sup.kor, G.sup.kor, B.sup.kor) determined by the logic element are allocated to this plasma generator, while the pixel data (R, G, B) are otherwise supplied unchanged to an RGB graphic data input of the display and an individual brightness control of the pixels of the display is carried out preferably for each pixel by means of the plasma pulse generator (*column 12 lines 8-12 reference PDP*).

Regarding **claim 23**, Rosmalen discloses a process operated in combination with at least one of image shifting, brightness reduction of stills, and the use of inverse images, while the process is operated in the sense of a control

circuit that is connected downstream (*as also disclosed in Yamazaki lowering or increasing the driving current/voltage for the light element will decrease or increase the brightness of an image, including still images adjusting duty cycles will produce the same effect*).

Regarding **claims 24 and 34**, Rosmalen discloses a process, wherein the logic element directly processes multiplexed data and wherein the logic of a graphic controller is integrated in the logic element so that the volatile memory for the graphic controller and the logic element are jointly usable (*as disclosed above a driving element such as a transistor for Rosmalen's display would directly processes any information to be displayed for every pixel*).

Regarding **claim 25**, Rosmalen does not specifically disclose a process, wherein controls for limiting the maximum brightness of the display are taken into consideration in that the process receives the information from the control mechanism of the display and/or reproduces this mechanism and/or carries out the control on its own.

It would have been obvious to one skilled in the art at the time of the invention to include a manual brightness adjustment mechanism for the user to adjust the screen to their liking which would also effect the auto correction disclosed by Rosmalen.

Regarding **claim 26**, Rosmalen discloses a process, wherein the display is activated less within the first operating time at least by sections with the aid of the corrected pixel values (R', G', B') and is only increasingly more frequently activated at a subsequent operating time with the aid of corrected pixel values

(R', G', B') (*it is inherent that as the history of the pixel decreases that more correction would be needed as disclosed by Rosmalen column 5 lines 46-60*).

Regarding **claim 27**, Rosmalen discloses a process of claim 26, wherein selected pixels are increasingly more frequently activated within the first operating time (*column 5 lines 46-60 wherein regardless of the history of the pixel the pixel is still scanned continuously or selected and activated*).

Regarding **claim 28**, Yamasaki discloses a process, wherein a process for gamma correction is applied in the logic element and integrated into the process (*figures 3a and 3b wherein a correction in driving voltage affecting a pixels brightness is a gamma correction applied to a logic element/driving element for the pixel*).

Regarding independent claim 29, Rosmalen discloses a wear-afflicted display having pixels, with a logic element and a memory element, the memory element having a volatile memory and a non-volatile memory, wherein a pixel wear value (R.sup.int, G.sup.int, B.sup.int) that is individual to each pixel is stored in the volatile memory for each basic color including red, green, and blue, wherein the pixel wear value (R.sup.int, G.sup.int, B.sup.int) represents one of an operating time and an operating intensity of the respective pixel (R, G, B) of the display, wherein a pixel correction value (R.sup.kor, G.sup.kor, B.sup.kor) that is individual to each pixel is stored in the volatile memory for each basic color red, green, and blue, for the correction of the respective pixel signal (R, G, B), wherein the pixel wear value (R.sup.int, G.sup.int, B.sup.int) and the pixel correction value (R.sup.kor, G.sup.kor, B.sup.kor) are stored in the same

memory cell ((R.sup.vf, G.sup.vf, B.sup.vf) of the volatile memory, and wherein characteristics that are proportional to the respective pixel wear values are stored in addition or alternatively to the pixel wear values.

Regarding **claim 32**, Rosmalen discloses a display, wherein in the case in which display technologies are used, in which individual colors have different wear characteristics, selected colors are applied with a relatively higher color and/or light component in comparison with the other colors (*column 5 lines 46-60 wherein different groups are created when one type of group that can be created is by color wherein each color receives specific varying duty cycles*).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER E. LEIBY whose telephone number is (571)270-3142. The examiner can normally be reached on 9 - 5 Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Richard A. Hjerpe can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CL

January 29th, 2009

/Richard Hjerpe/
Supervisory Patent Examiner, Art Unit 2629